



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Shandi University

Graduate College scientific research

Master of Nursing Sciences

Batch (1)

**Nurses knowledge regarding care of Patients with Acute  
Coronary Syndrome in El obied Teaching Hospital**

**(El obied Locality July -September 2017)**

**A thesis Submitted as Partial Fulfillment for the Degree of Master  
in Medical Surgical Nursing**

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## AYAH FROM HOLY QURAN

(قَالَ رَبِّ اشْرَحْ لِي صَدْرِي \* وَيَسِّرْ لِي أَمْرِي \* وَاحْلُلْ عُقْدَةً مِّنْ  
لِّسَانِي يَفْقَهُوا قَوْلِي)

صدق الله العظيم

طه - (٢٥-٢٦-٢٧)

# **Dedication**

I would like to dedicate myself to my mother, then my mother

To my father who supported me to complete my studies

To my ant Ehsan for helping me, to my best friend ABEER and  
WAMDA

To my brothers and sisters

## **Acknowledgement**

At first I would thanks for Allah liege lord who helped to present this study

Thanks my family and my friends and colleagues for my study

My university of Shandi

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Thanks for the staff member of CCU unit in ellobiid teaching hospital

## ABSTRACT

**Introduction:** Coronary artery disease is a term applied to obstructed blood flow through the coronary arteries to the heart muscle. The primary cause of coronary artery disease is atherosclerosis. The term acute coronary syndrome (ACS) is used to encompass the continuum of coronary artery disease. ACS describes the manifestations of coronary artery disease, such as unstable angina, non-ST elevation myocardial infarction, and ST elevation. If blood flow reduction resulting from CAD is severe and prolonged, a myocardial infarction (MI, heart attack) can occur, causing irreversible damage.

**Objective:** to assess knowledge of nurses regarding care of patient with acute coronary syndrome.

**Method:** this was a descriptive Hospitals- based study conducted in Hospitals in (ellobied ) in period from Julye –august ٢٠١٧ at cardiac care unit and it included ٣٠ nurses, the assessment was performed by using a questionnaire for knowledge and, the data presented in form of figures and tables.

**Results :**The results revealed that is (٨٣,٣%) of study sample more are female, (١٦,٦) of them where is male , about (٧٦,٦%) of study sample their age group less than ٣٠ years , (٢٣,٣%) their age ranged between ٣٠-٤٠ years .(٦٦,٦ %) of study sample have diploma in nursing while (٢٦,٦%) have bachelors in nursing and only (٦,٦%) have masters in nursing , proportion ( ٧٠%) regarding risk factor of ACS, (٩٠%) good knowledge regarding correct dose of aspirin which should be given to the patient , knowledge (٤٣,٣%) and (٤٣,٣%) in character of chest pain and angina pain ,(٢٠%) also satisfied in management of patient with ACS ,(٣٠%) had satisfied in nursing role knowledge, about (٢٠%) poor information in nurses role regarding care of patient,

**Recommendation:** update the knowledge of nurses with more information about acute coronary syndrome, more training with more information about important procedure for treatment of ACS patient and Increase awareness of nurse regard early treatment and diagnosis of chest pain, complication to reduce morbidity

## الخلاصة

**المقدمة :** مرض الشريان التاجي هو مصطلح ينطبق علي عرقلة تدفق الدم من خلال الشرايين التاجية الي عضلة القلب ، السبب الرئيسي لمرض الشريان التاجي هو تصلب الشرايين . يستخدم مصطلح متلازمة الشريان التاجي الحاده ، لتشمل سلسلة متصلة من مرض الشريان التاجي . يصف اكس مظاهر مرض الشريان التاجي مثل الذبحة الصدرية غير المستقرة ، ارتفاع احتشاء عضلة القلب .

**الهدف :** تقييم معرفة الممرضات بشأن رعاية المريض مع متلازمة الشريان التاجي الحادة .

**الطريقة :** هذه الدراسة وصفية مستندة الي مستشفى الابيض التعليمي في الفترة من يوليو - اغسطس ٢٠١٧ في وحدة رعاية القلب ، التي تشتمل ٣٠ ممرض / ممرضة حيث تم اجراء التقييم باستخدام استبيان للمعرفة ، والبيانات المقدمة في شكل ارقام وجداول .

**النتائج :** اظهرت النتائج أن ( ٨٣,٣ % ) من افراد عينة الدراسة من الاناث ، ( ١٦,٦% ) من الذكور . و ( ٧٦,٦% ) من عينة الدراسة الفئة العمريه لهم اقل من ٣٠ سنه و ( ٢٣,٣% ) تراوحت اعمارهم بين ٣٠-٤٠ سنه . ( ٦٦,٦% ) من عينة الدراسة حاصلين علي درجة الدبلوم في التمريض بينما ( ٢٦,٦% ) لديهم بكالوريوس في علوم التمريض فقط ( ٦,٦% ) حاصلين علي درجة الماجستير في التمريض . ( ٩٠% ) من عينة الدراسة لديهم معرفة جيدة بشأن الجرعه الصحيحه من لاسبرين التي ينبغي ان تعطي للمريض ، ( ٢٠% ) لديهم ضعف في معرفتهم بدور الممرض في الرعاية التمريضة لمتلازمة الشريان التاجي .

**التوصية :** مزيد من المعلومات مع تحديث معرفة الممرضات حول متلازمة الشريان التاجي، مزيد من الدورات التدريبية حول الاجراءات المهمه لعلاج مرضي المتلازمة ، زيادة وعي الممرضين عن العلاج المبكر وكيفية تشخيص اللام الصدر ، وكيفية الحد من مضاعفات المرض .

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## List of Abbreviations

<b>ACS</b>	<b>Acute Coronary Syndrome</b>
<b>AMI</b>	<b>Acute Myocardial Infarction</b>
<b>ACC</b>	<b>American College of Cardiology</b>
<b>AHA</b>	<b>American Heart Association</b>
<b>CABG</b>	<b>Coronary Artery By Pass Graft</b>
<b>CAD</b>	<b>Coronary Artery Disease</b>
<b>CCU</b>	<b>Coronary Care Unit</b>
<b>CHD</b>	<b>Coronary Heart Disease</b>
<b>CK</b>	<b>Creatine Kinase</b>
<b>CK-MB</b>	<b>Creatine Kinase, Muscle and Brain</b>
<b>DM</b>	<b>Diabetes Mellitus</b>
<b>ECG</b>	<b>Electrocardiogram</b>
<b>ESR</b>	<b>Erythrocyte Sedimentation Rate</b>
<b>IV</b>	<b>Intravenous</b>
<b>IHD</b>	<b>Ischemic Heart Disease</b>
<b>LVF</b>	<b>Left Ventricular Failure</b>
<b>LDL</b>	<b>Low Density Lipoprotein Level</b>
<b>LMWH</b>	<b>Low Molecular Weight Heparin</b>
<b>NSTEMI</b>	<b>Non-ST-Segment Elevation Myocardial Infarction</b>

## **Introduction**

Cardiovascular disease is the leading cause of death in the United States for men and women of all racial and ethnic groups.

Coronary artery disease (CAD) is the most prevalent type of cardiovascular disease in adults. For this reason, it is important for nurses to become familiar with various manifestations of coronary artery conditions and methods for assessing, preventing, and treating these disorders medically and surgically

ACS is result of three problem; ST elevation myocardial infarction (30%), non ST elevation myocardial infarction (25%) ,un stable angina (38%) . About 97.5% had at least 1 known risk factor, and 90% had 2 or more risk factors.

Atherosclerosis is the most common heart disease in the United States, which is an abnormal accumulation of lipid, or fatty, substances and fibrous tissue in the vessel wall. These substances create blockages or narrow the vessel in a way that reduces blood flow to the myocardium.

In unstable angina there is reduced in blood flow in coronary artery due to rupture in of atherosclerotic plaque but the artery in not completely occluded

The out com of ACS is influenced by rapid diagnosis and treatment.

**Justification:**

Acute coronary syndrome one of the most common complain that bring patient to the emergency department ,seeking immediate care to maintain lifesaving ,there is still high mortality rate in world , this research to identify the level of nurses knowledge about care of acute coronary syndrome patient .

**Objective:****General objective:**

To assess knowledge of nurse regarding ACSpatient care

**Specific objective:**

To assess information of nurses regarding definition , cause ,sign and symptom of acute coronary syndrome

- To assess immediate nursing care of ACS patient,
- To identify Emergency intervention of patient with chest pain and use of ECG machine.
- To assess nurses knowledge about nursing protocol in manage patient with chest pain.
- To increase nurses awareness to decrease mortality rate cause by chest pain .

## **Definition:**

Acute coronary syndrome (ACS) is an emergent situation characteristic by an acute myocardial ischemia that results in myocardial death, due to decreased blood flow in coronary arteries such that part of the heart muscles is unable to function properly or dies.

Including unstable angina, non ST-segment elevation myocardial infarction (NSTEMI) and ST-segment elevation myocardial infarction (STEMI). (1)

In UN stable angina there is reduced blood flow in coronary artery, due to rupture of atherosclerosis plaque but not completely occluded

In MI an area of the myocardium is permanently destroyed and subsequent thrombus formation results in complete occlusion in the artery.

## **Etiology and risk factor**

ACS is typically caused by coronary artery disease which is caused by atherosclerosis or hardening of the artery, atherosclerosis causes substance called plaque to build up in the coronary artery, plaque causes angina by narrowing the arteries. (2)

Only 2.5% of patients had no coronary risk factors. The most prevalent risk factors were smoking (58.6%), hypertension (56%), low HDL (51%) and a family history of CAD (48%).

The more risk factors can cause ACS:

Modifiable and non-modifiable risk factors

### **Non Modifiable risk factor:**

A non-modifiable risk factor is a circumstance over which a person has no control, such as age or heredity.

**Age:** in men occurs in about 45 years, but in women about 55 years

**Gender:** in men more than in women (women typically suffer from heart disease 10 years later than men due to the postmenopausal decrease in cardiac-protective estrogen),

**Race:** higher incidence in nonwhite population

### **Family history of coronary disease (genetic factor)**

**Modifiable risk factor:** A modifiable risk factor is one over which a person may exercise control, such as by changing a lifestyle or personal habit or by using medication (3).

## **Hypertension:**

The long standing elevated blood pressure may result in increased stiffness of the vessels walls lead to vessels injury and resulting inflammatory response causes vessels hypertrophy

## **Diabetes:**

Many patient with DM cardiovascular disease is Cause of death, hyperglycemia foster dyslipidemia, increase platelet aggravation, altered red blood cell function, this lead to thrombosis formation.(4)

## **Smoking and tobacco use:**

The nicotinic acid in tobacco triggers the release of catecholamine which raise heart rate and blood pressure also can Cause coronary artery constrict these lead to an increase of CAD and sudden cardiac death (5)

## **Hyperlipidemia**

### **Overweight, obesity:**

Obesity is associated with higher risk of CAD obese person more borne to glucose intolerance, hypertension, elevated in triglyceride.

Lake of physical activity (5) .

## **Clinical manifestation:**

The signs and symptoms of acute coronary syndrome generally begin quickly, sometimes without warning, and can alert a person that something is wrong. Common symptoms include:

### **Chest pain**

#### **Is the most common presenting symptom of ACS**

Angina chest pain describe as heaviness, tight ness, squeezing or crushing pain in the center of the chest radiated on both arm ( more in left arm) Shoulder , neck , jaw , back , brought with exertion and relive with rest or vasodilator (GTN) .

Duration of pain is about 2-15 minute after stopping exertion or activity.

MI Chest pain describe as suddenly and continues , not relive by rest or nitroglycerin , pain in the center of the chest crushing , an elephant on stand on chest , Continues more than 15 minute.

### **Other symptom:**

- Pt my present with combination of symptom including: short ness of breath, indigestion, nausea and anxiety, sweating.
- Pt have cool, pale and moist skin ,heart rate and respiratory rate are faster than normal due to stimulation of sympathetic nervous system

- On listening wheeze or crackles my hear.
- Pulse my rigid or irregular.
- Recent research show that women elderly people with diabetes less likely to experience chest pain as symptom. (6) .

## **Diagnosis:**

### **By History and evaluating clinical manifestation of pain**

#### **ECG changes:**

Generally occur within 2 to 12 hour, St Segment depression and t wave inversion indicate pattern of ischemia, St Elevation indication an injury, Q wave indicate tissue necrosis and are permanent.

ECG stress.

#### **Serum glucose level:**

- ⊙ The serum glucose level is important to monitor, because many patients with cardiac disease also have diabetes mellitus

#### **Complete blood count:**

- ⊙ The erythrocyte count usually decrease in rheumatic fever and infective endocarditic
- ⊙ The leukocyte elevated in pericarditis and infective endocarditic

#### **Serum electrolyte level:**

- ⊙ Sodium, potassium, and calcium are ions that are vital to cellular depolarization and repolarization. Sodium concentration reflects relative fluid balance
- ⊙ A decrease in potassium causes cardiac arrhythmia the effect of an elevated serum potassium concentration is myocardial depression and ventricular irritability.
- ⊙ Hypercalcemia and hypocalcaemia also can cause dysrhythmias (7)

#### **Blood urea nitrogen level:**

- ⊙ In the patient with cardiac disease, an elevated BUN level may reflect reduced renal perfusion (from decreased cardiac output) or intravascular fluid volume deficit (from diuretic therapy or dehydration).
- ⊙ high BUN and high creatinine reflect renal impairment

#### **Chest x ray:**

- ⊙ A chest x-ray usually is obtained to determine the size, contour, and position of the heart.

#### **Enzymes and biomarkers:**

When myocardial tissue is damaged (egg, due to MI), cellular injury results in the release of intracellular enzymes and proteins into the bloodstream which, in turn, causes elevated peripheral blood enzyme levels.

#### **Nonspecific enzymes:**

Can increase from damage in other organ and are therefore not routinely help full in the diagnosis of MI such as myoglobin, lactate dehydrate genes and aminotransferase.

### **Specific markers:**

Troponin: is protein of muscles cell and have three sub unit.

Troponin c, troponin I and troponin T.

Troponin I and troponin T are cardiac specific, start to increase in 4-6 hours and remain high up to week

### **Creatinine kinase (CK):**

- Is a catalyst for energy production and is found in brain, myocardium, and skeletal muscle.
- Has a 98% sensitivity for AMI 72 hours after infarction.

CK is sensitive but not specific for myocardial injury

CK-MB isoenzymes found in the heart it rise within 4-6 hours and fall to normal within 48-72 h.

Pt with ACS the biomarkers should be repeated at 6 to 12 hours after symptom onset.

### **C-reactive protein:**

CRP is an inflammatory marker produced by the liver

-Elevated CRP is associated with AMI, stroke, and the progression of peripheral vascular disease. However, it can also be elevated with any inflammatory process.

-CRP can also be used to identify patients at risk for developing CAD.

### **Lipid profile :**

Cholesterol normal level less than 200mg/dl

-triglyceride 40-150mg/dl

- Lipoprotein:
- Low density lipoprotein (LDL) less than 100 mg/dl
- High density lipoprotein (HDL) male 35-65mg/dl -
- female 35-85 mg/dl

### **Coagulation profile:**

- PTT (partial thromboplastin time):-

### **Indication:**

- To assess the patient receiving heparin.

Normal value :( 25 – 28 second).



- PT (prothrombin time):

Indication: to monitor patient receiving thrombolytic and anti-coagulation with -warfarin.

Normal value: (less than 13 second).

- INR: (international normalize ratio).

Normal value: up to 1.31.u.

### **Echo cardiograph (ultra sound cardiograph)**

- Echocardiography is used to visualize and assess cardiac function, structure, and hemodynamic abnormalities.
- It is the most commonly used noninvasive cardiac imaging tool.

### **Cardiac MRI:**

Magnetic resonance imaging (MRI) is used to evaluate diseased heart muscle.

It is possible that this technology will eventually replace cardiac catheterization.

### **Coronary angiography:**

- Injection of contrast medium into the vascular system (to outline the heart and blood vessels) accompanied by cineangiograms (rapidly changing films or movies on an intensified fluoroscopic screen), which record the passage of contrast medium through the vascular tree.
- -Useful for providing information regarding coronary anatomy, structural abnormalities (occlusions, defects, fistulae), or abnormal heart valve function.

### **Cardiac cauterization:**

- Cardiac catheterization is a diagnostic procedure in which a catheter is introduced into the heart and blood vessels to:
  - measure oxygen concentration, saturation, tension, and pressure in the various heart chambers;
  - detect shunts;
  - provide blood samples for analysis and determine CO and pulmonary blood flow

### **Manage ment:**

Medical and nursing management

**Goal of management:**

To decrease oxygen demand of myocardial and increase oxygen supply.

To prevent complication.

Relieving pain and improving blood flow to help restore heart function as quickly as possible.

**Immediate nursing management:**

- Careful history.
- Assess chest pain or discomfort, difficult breathing, regarding to time, duration, precipitating factor, reliving factor.
- Tow IV line access.
- Rest of bed with head of bed elevated (cardiacbed) .
- Obtain 12lead ECG.
- Administered MONA (7)

**MONA:-**

-M: morphine

-O: oxygen

-N: nitroglycerine

-A: aspirin

-Obtain lab specimen for cardiac indicator.

**Medical management:****Morphine:-**

-reduce pain and anxiety

-It also reduces preload and afterload, which decreases the workload of the heart and relaxes bronchioles to enhance oxygenation

-cardiovascular response to morphine should monitored carefully particularly BP which can decrease and RR which can be depressed

**Oxygen administration:-**

-initiated at the onset of chest pain

-delivered oxygen to myocardium and decrease pain

-Oxygen saturation level more than 93%

**Nitroglycerine:-**

-increase oxygen supply which decrease ischemia and relive pain

-administered by sublingual, topical and IV.

-Their main side effect: - headache and hypotension.

-sublingually relived pain within 3minutes.

-Topical nitrate applied at the morning and relived at the evening to prevent tolerance.

-IV infusion administered to hospitalized patient with recurring sign and symptom of ischemia.(8)

**Thrombolytic therapy: (ATPase, streptokinase)**

-break up the fibrin meshwork

-Dissolve thrombus

-minimizing size of infraction and preserving ventricular function

Indication of thrombolytic:

- ⊙ Chest pain for longer than 20 minutes, unrelieved by nitroglycerin
- ⊙ ST-segment elevation in at least two leads that face the same area of the heart
- ⊙ Less than 6 hours from onset of pain

**Nursing consideration for using thrombolytic:**

- ⊙ Minimize number of time the patient skin is puncture.
- ⊙ Avoid IM injection
- ⊙ monitor cardiac rhythm for detection for any threatening arrhythmia
- ⊙ Monitor BP(hypotension )
- ⊙ Check for sign and symptom of bleeding ,Gum bleeding
- ⊙ Treat major bleeding by disconnecting thrombolytic therapy.
- ⊙ Anaphalytic reaction-rare

Obtain 12 lead ECG prior and after 1hr of infusion completed.

### ☉ **Aspirin:-**

-prevent platelet aggression

-may cause GI upset the use of H2receptor and PPI should considered to allow continue of aspirin therapy

### **Beta blocker** :-( Bisoprolol, Metaprolol)

-decrease oxygen consumption by blocking beta adrenergic sympathetic stimulation to heart.

-cardiac side effect: hypotension, bradycardia

-IF beta blocker administered IV: the ECG, BP and HR monitored closely up to 2hr.

-Diabetic patient instruct to assess RBS to identify hypoglycemia caused by this medication

### **Calcium Channel blocker** :-( Nifedipine , Verapamil)

Some decrease sinoatrial node automaticity and atrioventricular node conduction, resulting in a slower heart rate and a decrease in the strength of the heart muscle contraction (negative inotropic effect). These effects decrease the workload of the heart. Also relax the blood vessels, causing a decrease in blood pressure and an increase in coronary artery perfusion.

-Caution used in people with HF

-Side effect:-hypotension, bradycardia and gastric distress.

### **Angiotensin converting enzyme inhibitor** :-( captopril, Lisinopril)

-prevent converting angiotensin I into angiotensin II

-indicated for those with DM, HTN and HF

-on admission start with short acting (captopril) and on discharge with long acting (Lisinopril)

### **Antiplatelet and anticoagulant** :-( clopigreal, heparin)

-Aspirin and clopigreal prevent platelet aggression

-Both when used together reduced risk of MI

-Heparin prevent formation of new gloat and fibrin formation.

- The patient should monitored for sign and symptom of internal and external bleeding

**Lipid lowering agent:-**

-that inhibit cholesterol production by liver and decrease LDL, triglyceride and increase HDL.(6)

**Revascularization therapy:**

PCI (percutaneous coronary intervention)

CABG (coronary angiography bypass graft)

**Percutaneous coronary intervention (PCI):**

- ⊙ . Procedure in which a catheter is placed in a coronary artery, and one of several methods is employed to remove or reduce a blockage within the artery.
- ⊙ Catheter threaded through femoral artery up through aorta and into the coronary arteries
- ⊙ Angiography is performed using injected radiopaque contrast agents (commonly called dye) to identify the location and extent of the blockage.
- ⊙ It involve stent that left permanently over lesion, some stent are drug coated and bare metal stent.
- ⊙ Because of risk of thrombus formation with stent the patient receive clopidogrel and aspirin.
- ⊙ Clopidogrel continue for at least month following bare metal placement and a year for drug coated stent
- ⊙ Should Done in less than 6hour arrival of MI patient to ER to improve coronary artery patency as early as possible (9)
- ⊙ **Coronary artery bypass graft ( CABG ) :**

Is a surgical procedure in which a blood is grafted to an occluded coronary so that blood can flow beyond the occlusion.

Heart bypass surgery is recommended when one or more coronary arteries are seriously blocked and blood supply to the heart muscle is insufficient, in which The vein is removed from the leg or arm and grafted to the ascending aorta and to the coronary artery distal to the lesion.

Arterial grafts are preferred to venous grafts because they do not develop atherosclerotic changes as quickly and remain patent longer. The surgeon leaves the proximal end of the mammary artery intact and detaches the distal end of the artery from the chest wall. This end of the artery is then grafted to this end of the coronary artery distal to the occlusion. (9)

**Routine nursing management:**

- Assess, record vital sign frequently.

- Monitor for pulse oximetry .and maintain oxygen saturation greater than 95%
- Assess level of consciousness
- Assess heart rate and rhythm: dysrhythmia may indicate not enough oxygen in the myocardial.
- Monitor fluid volume status to prevent over load.
- Encourage pt. to breathe deeply and change position to maintain adequate ventilation.
- Pt should limitation mobility until pain free.
- Maintain hemodynamic stability by :
  - Monitor BP every 2 hour
  - Take temperature every 4 hour , and monitor skin color
  - Be alert to change in mental status such as confusion ,restlessness
  - Evaluate urine output , decrease in urine output reflect decrease in renal blood flow , early sign of cardiogenic shock is hypotension , oliguria
- Reduce anxiety :
  - Reducing anxiety by trusting and caring relationship with the pt. .
  - Explain the patient and his family reason for hospitalization , diagnosis tic test .and therapies administration
  - Encourage patient to be partner in care and greeting assist in developing positive relationship.
  - Administer antianxiety medication as prescribe(7).

### **Complication:**

The complication of ACS depend on how much, how long and where coronary artery is blocked if the blocked is large the heart not pumping effectively.

#### **Pericarditis:**

( inflammation of two layered sac that envelops the heart , my develop in first day or two after heart attack is developed in patient who have not opened the artery by PCI or CABG called Dressler syndrome ( post MI )

Management: usually given non-steroidal anti-inflammatory drug (corticosteroid) .

#### **Myocardial rupture:**

Rarely occur in 1to 10 days after heart attack is more common among women. , rupture of the septum result in too much blood being to lung Couse pulmonary edema.

#### **Arrhythmias** (ab normal rhythm)

Occur in more than 90% in people how heart attack have.

#### **Ventricular aneurysm:**

The damage muscles may form thin bulge (aneurysm) on the wall of the ventricles, confirmed by ECG with abnormal rhythm (4).

## Methodology:

### 3.1. Study design:

Descriptive cross sectional study done during period July ---September 2017

### 3.2. Study area:

Ellobied is the capital state of north Kurd fan, in western Sudan.

Is the terminus of rail line , the junction of various roods and camel caravan routs , population is the majority Muslim , is the side of an airport and oil refinery , AL obied is the home of university of kourdofan established in 1990 , the transported between town and Khartoum take about nine hours by tourist coach , 700 kilometer from Khartoum .

### 3.3. StudySetting:

Ellobied teaching hospital has four internal department surgery , pediatric , medicine , obese as well as specialized departments such as dialysis , cardiac care unit ( CCU) with intensive care of 9 beds , 18 nurses , 5 doctors , one cardiologist.

### 3.4. Studypopulation:

All Nurse Workin cardiac department in ellobied teaching hospital.

**Inclusive criteria:** nurse work in cardiac department.

**Exclusive criteria:** nurse work in medicinedepartment

### 3.5. Sampling and Sample size:

Sampling: nurses work in cardiac unit .

Sample size:(30)

### 3.6. Data collection tools:

Closed end questionnaire was develop by the researcher based on available literature composed of (19question) Part 1: question (1-5) social demographical data, (6—19 knowledge question).

#### Score of knowledge:

The full score was 3 which calculated from frequency and percent as follows:

$$\text{Score} = \text{percent} \times 100/30$$

Evaluation Measure	Measurement Range
Good knowledge	$\geq 75$
Satisfied knowledge	51- 74)(
Poor knowledge	$\leq 50$

### **3.7. Data collection technique:**

the data was collected in one weeks during morning and afternoon night shift , post end of the shift , explaining the purpose of the study by verbal participant consent and every participant was allow enough time to field the question .

### **3.8. Data analysis:**

The data was coated then analysis manually by simple statistical technique then by computer and exile.

Different statistical measure was used (frequency, percentage,) then presented in table and figure.

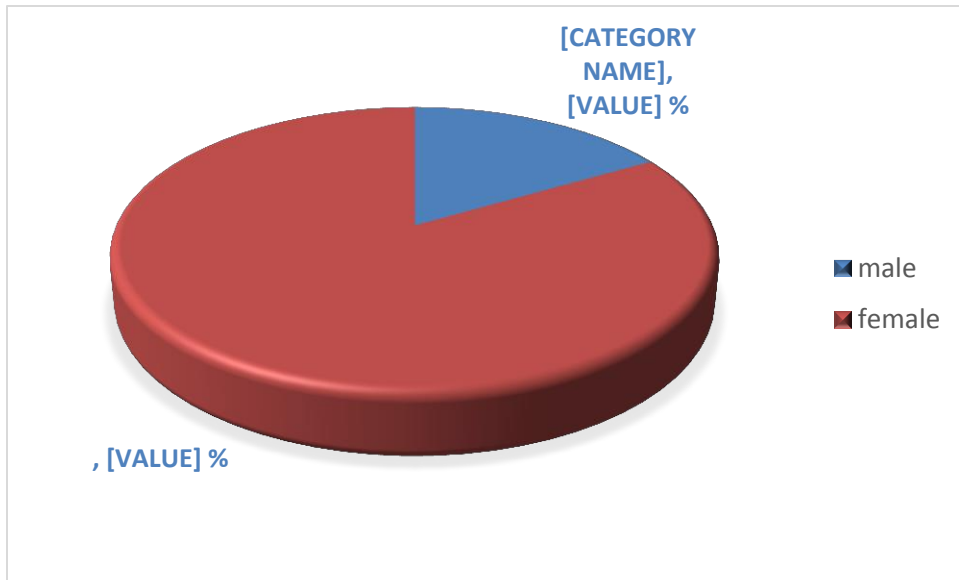
### **3.9. Ethical consideration:**

The proposal was approved by the ethical scientific committee permeation was taken from the director of hospital and the head nurse.

Verbal permit ion was taken from participant and them chance refuse, stop if they wish.



**Figure (1):Gender distribution of nurses working in CCU**



the above figure show that (16.6%) were male , (83.3%) were female

**Figure (2): Age distribution of nurses working in CCU:**

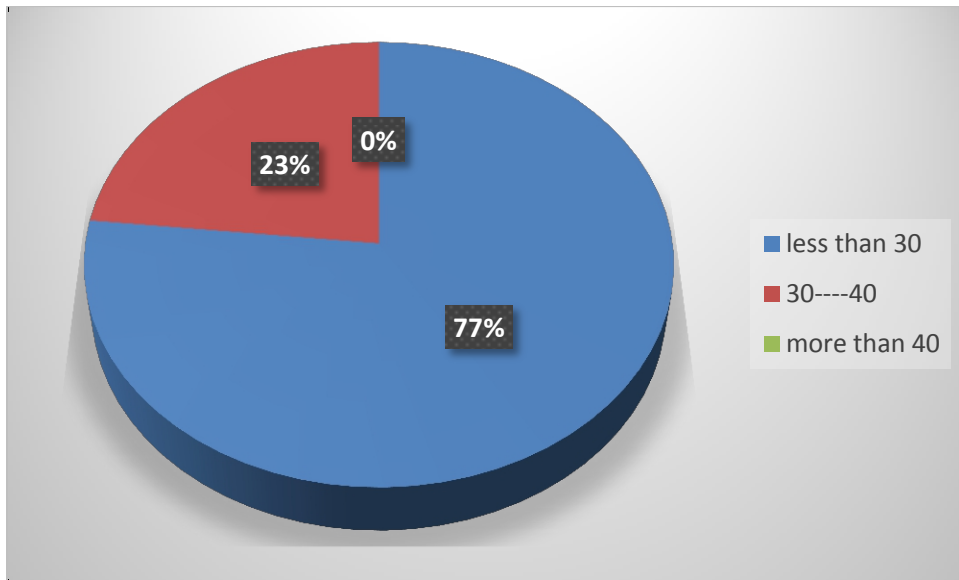
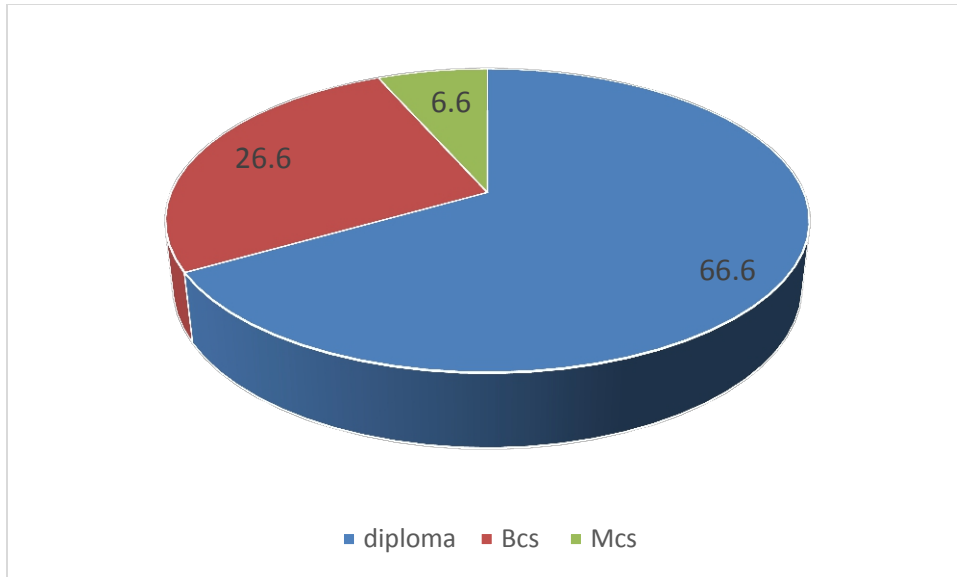


Figure above show age of nurses less than 30 years (77%), from 30-----40(23%), more than 40(0%) .

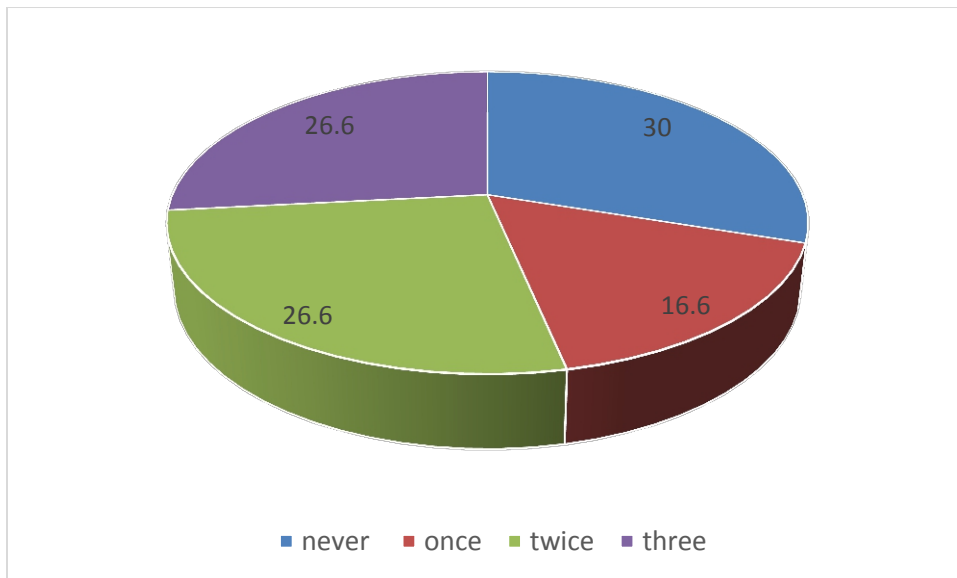
**Figure (3) qualification of nurses working in CCU:**



The above figure showed that, (66.6%) had diploma, (26.6%) had BSc, and (6.6%) had MSc.

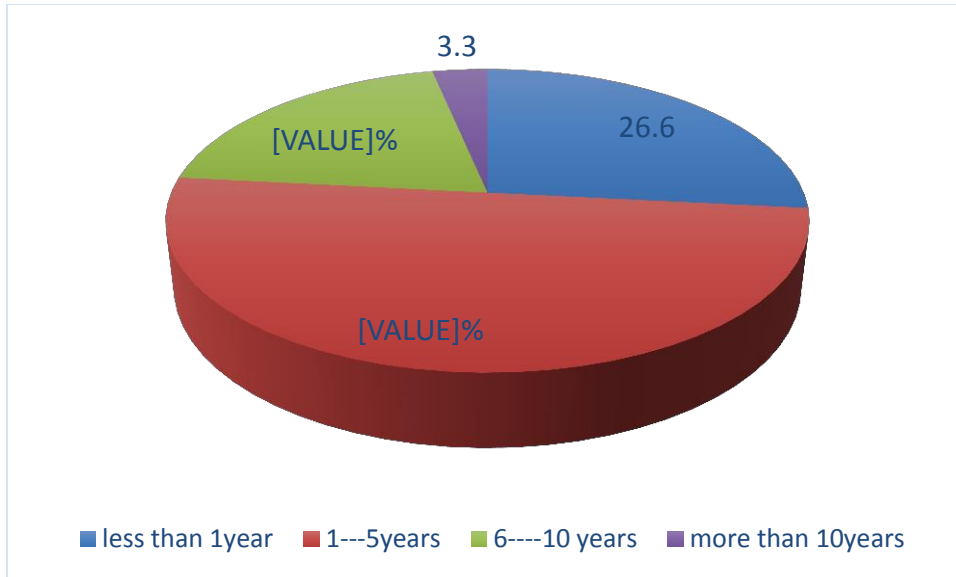
**Figure (4): Training courses for nurses working in CCU:**

22%



The above figure showed that their training courses, (30%) had never training course, (16.6%) had training once, (26.6%) had training twice and (26.6%) had training three.

**Figure (5) Experience of nurses working in the CCU:**



The above figure showed that the level of experience, (26.6%) had experience < 1year, (50%) had experience of 1 - 5years, (20%) had experience of 6--10years, and (3.3%) had experience more than 10years.

**Table (1): gender of nurses in CCU unit:**

Gender	Male		Female	
	Frequency	Percentage	Frequency	Percentage
	5	16.6%	25	83.3%

Table above show the percentage of female nurses in unit about (83.3%), men (16.6%).

**Table (2): age of nurse in CCU unit**

Age	Less than 30		30 - 40		More than 40	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
	23	76.6%	7	23.3%	0	0

Table above showed nurses who are less than 30years (76.6 %,) from 30---40 about (23.3%) and more than (40) are zero percent.

**Table (3): the educational level of the nurses**

Educational level	Diploma		BSc		MSc	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
	20	66.6%	8	26.6%	2	6.6%

Table above show the proportion of graduate of CCU nurses in diploma (66.6%), (26.6%) are bachelors and (6.6%) are masters.

**Table (4): educational courses for nurses**

Learning course	Never		Once		Twice		Three	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
	9	30%	5	16.6%	8	26.6%	8	26.6%

Table above illustrate (30%) Of nurse never been learning course, (16.6%) took once of learning course, (26.6%) took twice, (26.6%) took three courses.

**Table (5): level of experience**

Level of experience	Less than 1 year		1-5 years		6-10 years		More than 10 years	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
	8	26.6%	15	50%	6	20%	1	3.3%

Table above illustrated (50%) of nurse have 1---5 years of experience , (26.6%) have less than 1 year , (20%) have 6-10 years of experience and (3.3%) have more than 10 years' of experience..

**Table (6): knowledge regarding risk factor, character of chest pain, angina pain**

Item	Level of knowledge					
	Good knowledge		Satisfied knowledge		Poor knowledge	
	Frequency	percentage	Frequency	Percentage	Frequency	Percentage
Risk factor	21	70%	3	10%	6	20%
Character of chest pain	10	33.3%	13	43.3%	7	23.3%
Angina pain character	7	23.3%	13	43.3%	10	33.3%

The above table show that, (70%) were good identified about risk factor, (10%) were satisfied identified, (20%) poor identified

Also regarding character of chest pain (33.3%) good identified,( 43.3%) were satisfied identified , (23.3%) were poor identified , also according to character of angina pain that (23.3%) were good knowledge , (43.3%)were satisfied knowledge, (33.3%) were poor knowledge ,

**Table (7): knowledge regard patient immediate management, correct dose of aspirin, routine observation to the patient. Nurse's role**

Items	Level of knowledge					
	Good knowledge		Satisfied knowledge		Poor knowledge	
	Frequency	Percentage	Frequency	percentage	Frequency	Percentage
Management	20	66.6%	6	20%	4	13.3%
Dose of aspirin	27	90%	0	0	3	10%
Nurse role	15	50%	9	30%	6	20%
Routine observation	20	66.6%	3	10%	7	23.3%

The table above show that, their knowledge to ward immediate management of chest pain were (66.6%) good knowledge, were (20%) satisfied knowledge and (13.3%) poor immediate management.

On the other hand regarding correct doses of aspirin (90%) good knowledge, were (0%) satisfied correct dose, (10%) poor correct dose of aspirin.

Regarding nursing role showed, (50%) were good nursing, were (30%) satisfied nursing role, (20%) poor nursing role for patient.

Also knowledge to words routine observation of ACS patient, (66.65) good knowledge in observation, were (10%) satisfied observation and (23.3%) had poor routine observation to ACS patient.

**Table (8) : knowledge regarding immediate diagnosis, specific enzymes , transferring the patient and complication of ACS**

Items	Level of knowledge					
	Good knowledge		Satisfied knowledge		Poor knowledge	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Immediate Diagnosis	10	33.3%	11	36.6%	9	30%
Specific Enzymes	27	90%	1	3.3%	1	3.3%
Transfer of patient	2	6.6%	17	56,6%	11	36.6%
Complication	14	46,6%	11	36.6%	5	16.6%

Table above show, their knowledge about immediate diagnosis of chest pain (33.3%) had good knowledge regard diagnosis, (36.6%) had satisfied immediate diagnosis of the patient, (30%) had poor immediate diagnosis of ACS.

Regarding specific enzyme to confirm MI (90%) had good identified, (3.3%) had satisfied identified to enzymes. (3.3%) had poor identified to specific enzymes of MI. also (6.6%) had good identified to transferring of the patient, (56.6%) satisfied knowledge of transferring, (36.6%) had poor knowledge . also showed (46.6%)were good knowledge about complication of ACS, were (36.6%)satisfied knowledge to complication ,(16.6%)had poor knowledge about complication of ACS .

**Table (9) : knowledge regarding patient for factor lead to recurrent chest pain, education of patient before discharge and life style changes**

Items	Level of knowledge					
	Good knowledge		Satisfied knowledge		Poor knowledge	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Factor lead to recurrent chest pain	13	43.3%	10	33.3%	7	23.3%
Education before dis	18	60%	7	23.3%	5	16.6%
Life style change	16	53.3%	8	26.6%	6	20%

Table above show that , their knowledge to word factor lead to recurrent chest pain about (43%) were good knowledge,(33.3%)had satisfied knowledge and (23.3%) poor knowledge , also their knowledge about education of patient before discharge (60%)good knowledge , (23.3%)were satisfied knowledge, (16.6%) poor knowledge about education to the patient before discharge, also result show to word knowledge of nurse about life style changes (53.3%)had good knowledge,(26,6%) had satisfied knowledge, (20%)had poor knowledge regard life style changes.

## **Discussion:**

Nursing care is important in survival of patient with acute coronary syndrome. The competence of the nurse in charge is very crucial in such patient care.

### **Socio demographic data:**

The study showed that, nurses with age 30 years or less represented the vast majority of participants (76.6%), indicating that most nurses were juniors (50%) had experience of 5 years or less versus (20%) who had experience for more Than 5 years, were (26.6%) less than 1year. The advantage of nurses in young age is fulfilling the hyperactivity required in such critical departments as well as they can be modified to the ideally required performance, on the other hand experienced nurses help in decision making and supervision of juniors. A similar findings were reported by the study in Iraq which showed that, the majority of nurses (36.8%) were between the ages (22-27) years, and they reported that, those with experience from (1 -9 years) years were (57.9%), (10-19 years) were (15.8%), and nurses with (20-29 years) were (26.3%) [13].

Gender distribution revealed that, most participants were females (83.3%). Profession of nursing in Sudan has long history of association with females in different levels of nursing. Professional qualification of males (B.Sc. degree) was applied recently. This is compatible with findings reported by alBashir Hospital and colleagues in Sudan, who found that, females represented 84% while males represented 16% [56]. But the study in Iraq by done Al- Ftlawy DM showed different result showing that, males were 52.6%, while females represented

47.4% [13].

Level of education Distribution showed(66,6 %) of study sample have diploma in nursing while (26,6%) have bachelors in nursing and only (6,6%) have masters in nursing.

On the other hand this results showed (30%) of study sample never took learning courses,(16,6%) took once learning , (26,6%) took twice learning courses , (26,6%) took three courses of learning .

### **Nurses knowledge regarding nursing care of ACS:**

Assessing nurses' knowledge about ACS in the current study revealed that, they had good knowledge about (33.3%) , (23.3%) in character of chest pain and angina pain but had satisfied knowledge in percentage (43.3%) in each one . Early knowledge about character of pain enabling early diagnosis and accordingly early management as well as it prevents complications and safe patients' life. This disagrees with findings reported by which the nurse knowledge is low by estimated .



Nurses' knowledge in regard to risk factors of ACS was found good (70%) The current finding was higher than the rate of knowledge among nurses reported by Stiffening et al in Italy in which risk factors were answered correctly by only 15% of staff nurses [58]. literature is reviewed most prevalent risk factors were smoking (58.6%), hypertension (56%), low HDL (51%) and a family history of CAD (48%).

The participants were assessed for the knowledge regard management of ACS , and they showed good knowledge about management (66.6%), it included variables differed from immediate management to CCU procedures, the highest score of knowledge were reported in the aspect of correct dose of aspirin which administered to the patient (90%) , routine observation (66.6%) , nursing role (50%), compared with the guidelines of the European Society of Cardiology,15 patients with STEMI should be treated within 6 hours from the onset of pain by medical or mechanical reperfusion. A total of 76% of patients with STEMI in this study underwent reperfusion therapy. Specifically, 74.4% of STEMI patients were treated with medical reperfusion, and 1.6% with mechanical reperfusion (primary percutaneous coronary and The ideal method of carrying the patients to the CCU and other management for patients had lowest score of Knowledge's (6.6%) . In Sudan Method of transfer the patients usually done by the available carrier due to unavailability or scarcity of the ideal mean (Wheel chair, ambulance, cardiac bed). , but the current process may lead to sub-optimal patient outcomes, mentioning that some issues should be considered during transferring patients; identifying transfer-eligible patients; identifying a destination hospital; negotiating the transfer; and accomplishing the transfer[19] .

In regard to knowledge about diagnostic measures to confirm the ACS, nurses showed good knowledge with percentage of(90%) in specific enzyme to confirm ACS, satisfied knowledge in proportion (36.6%) in immediate diagnosis of chest pain.

Regarding Complications of ACS knowledge of nurse showed low score in percentage (46.6%), good knowledge in factor lead to recurrent chest pain (43.3%). Literature which showed that, nurses who are knowledgeable about potential complications will be able to detect early signs and symptoms, initiate emergency treatment, and prevent.

Nurses showed good knowledge regarding counseling provided for ACS patients; they showed good knowledge towards counseling about education before discharge (60%), education about life style changes (53.3%)

**Conclusion:**

Also the result revealed that nurses had satisfied knowledge in transferring the patient, diagnosis of ACS patient, education of the patient before discharge from hospital, character of chest pain and angina pain also result show poor percentage knowledge of nurse in transferring the patient.

## **Recommendation:**

### **Based on the results of study I recommended:**

- To update the knowledge of nurses with more information about acute coronary syndrome.
- more training with more information about important procedure for treatment
- Increase awareness of nurse regard early treatment and diagnosis of chest pain, complication to reduce morbidity.
- Increase the number of training sessions to nurses as general and special training session to nurse work in cardiac unit, with encouraging nurses with
- good level of knowledge to join the cardiac units.
- Educational sessions are necessary to improve the nurse's ability dealing with management with such diseases.

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**University of shandi**

**Faculty of nursing science**

**Msc medical surgical nursing**

**Nurses knowledge regarding care of patient with acute coronary syndrome in ellobiid teaching hospital**

These research is conduct for master degree in medical surgical please answer by true or false :

- 1- Gender: a/ male  b/ female
- 2- Age : a/ less 30 year b/ 30- 40 years  c/more than 40years
- 3- Educational level :  
a/ diploma  b/ Bsc  c/ Msc
- 4- Learning Courses :  
a- Never  b- once  c- twice  d- three or more
- 5- Years of experience : a/ less than 1 year  b/ 1-5 years   
c/ 6-10 years  d/ more than 10 years
- 6- The risk factor of ACS include :  
a/ hyper lipemia  b/ DM  C/ HTN   
d/ age and family history
- 7- Character of typical chest pain :  
a/ central or epigastric pain  b/ substernal ,burning ,or Sharpe pain   
c/ radiated to arm , jaw ,neck  d/ associated with sweating , nausea
- 8- Angina pain characterized by :  
a/ relive by nitrate  b/ relive by rest  c/ duration 3-5 second
- 9- The immediate management when patient admitted :  
a/ put in cardiac bed  b/ administer oxygen and nitrate   
c/ aspirin or morphine  d/ 12 lead ECG
- 10- The correct dose of aspirin :  
a/ 300mg direct swallow  b/ 300mg crushed  c/ 100mg crushed
- 11- The nurse role after receive medication :  
a/ complete bed rest  b/ close monitoring   
c/ check vital sign  d/ 12lead ECG
- 12- Routine observation of the patient :  
a- Vital sign  b – ECG   
c/ in take and output  d- cardiac monitor
- 13- The immediate diagnostic measure include:  
a/ ECG  b/ clinically by sign and symptom   
c/ cardiac enzyme test  d/ angiography
- 14- The cardiac enzyme test one of the initial investigation of chest pain :  
a/ troponin  b/ myoglobin  c/ creatinine kinase ck-mb

15- Transfer for pt by :

a/ walking alone

c/ by trolley or bed

b/ by wheel chair

d / walking with assistance

16- Complication of ACS include :

a/ pulmonary edema

c/ dysrhythmias and cardiac arrest

b / cardiogenic shock

d / myocardial rupture

17- Factor assist recurrent chest pain include :

a/ sexual intercourse

c/ heavy exercise

b/ stress

d/ infection

18- before discharge patient educated about :

a/ medication

c/ follow up

b/ live style change

d/ disease and complication

19- modification of life style include :

a/ stop smoking

c / avoid stress

b/ change the nutritional habits

d/ decrease wt